IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of Edward A. Richley et al.	Group Art Unit: 2876
Serial No. 09/448,088	Examiner: Uyen-Chau N. Le
Filed: November 23, 1999	
For: Laser Locating And Tracking System For Externally Activated Tags	

APPEAL BRIEF

Board of Patent Appeals and Interferences
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

BRIEF ON BEHALF OF EDWARD A. RICHLEY ET AL.:

Appellant appeals from the Office action mailed December 28, 2004, in which currently-pending claims 1 and 3-13 stand rejected. Appellant filed a Notice of Appeal on April 28, 2005 by facsimile to reinstate the earlier appeal of August 10, 2004. A Petition for Extension of Time Under 37 CFR § 1.136(a), requesting a one-month extension of time, is included with this Appeal Brief.

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1. REAL PARTY IN INTEREST

The real party in interest is assignee Xerox Corporation, Palo Alto Research Center, a California corporation, located at, 3333 Coyote Hill Road, Palo Alto, CA 94304.

2. RELATED APPEALS AND INTERFERENCES

A first Notice of Appeal was filed on August 10, 2004. A timely Appeal Brief was filed on October 12, 2004. A second Notice of Appeal was filed April 28, 2005 to reinstate the earlier appeal of August 10, 2004. There are no other appeals or interferences known to Appellant, Appellant's legal counsel, or assignee, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

3. STATUS OF CLAIMS

Claims 1 and 3-13 are rejected and pending. Claim 2 has been previously cancelled. Claims 1 and 3-13 are the subject of this appeal. An Appendix setting forth the Claims involved in the appeal is included as Section 10 of this Appeal Brief.

4. STATUS OF AMENDMENTS

Proposed amendments to Claims 1 and 3 were submitted in response to the final Office action mailed on April 12, 2004. However, the amendments were not entered, as stated in the Advisory Action mailed on May 5, 2004.

5. SUMMARY OF CLAIMED SUBJECT MATTER

Independent Claim 1 defines a system for identification and tracking of tags distributed in a room (page 3, lines 4-5). Claim 1 recites a laser base station for scanning laser beams through a portion of the room (page 3, lines 6-7; page 8, lines 21 through page 4, line 3; page 13, line 18 through page 14, line 7; FIGURE 1, Ref. No. 14). Claim 1 further recites a tag reactive to incident laser beams to

provide a data signal (page 3, lines 7-9; page 14, line 10 through page 15, line 11; FIGURE 1, Ref. No. 54). Claim 1 further recites a tag tracking system receiving input from the laser base station, the tag tracking system storing state records of position and informational content of the tag, wherein the tag tracking system determines angular position of the tag with respect to the laser base station (page 3, lines 9-14; page 10, line 10 through page 11, line 22; FIGURE 1, Ref. No. 20).

Independent Claim 3 defines a system for identification and tracking of tags distributed in a room (page 3, lines 4-5). Claim 3 recites at least two laser base stations (page 3, lines 6-7; page 8, lines 21 through page 4, line 3; page 13, line 18 through page 14, line 7; FIGURE 1, Ref. No. 14). Claim 3 further recites a tag reactive to incident laser beams to provide a data signal (page 3, lines 7-9; page 14, line 10 through page 15, line 11; FIGURE 1, Ref. No. 54). Claim 3 further recites a tag tracking system receiving input from the at least two laser base stations, the tag tracking system storing state records of position and informational content of the tag, wherein the tag tracking system determines an absolute position of the tag in the room based on the input from the at least two laser base stations (page 3, lines 9-14; page 10, line 10 through page 11, line 22; FIGURE 1, Ref. No. 20).

6. GROUNDS FOR REJECTION TO BE REVIEWED ON APPEAL

Claims 1, 3, 4, and 9 stand rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 5,963,134, to Bowers et al, ("Bowers") in view of U.S. Patent No. 6,371,371, to Reichenbach ("Reichenbach").

Claims 5-8 and 10-13 stand rejected under 35 U.S.C. § 103(a) as being obvious over Bowers in view of Reichenbach, and further in view of U.S. Patent No. 6,005,482, to Moran ("Moran").

7. ARGUMENT

A. First Rejection under 35 U.S.C. § 103(a)

To establish a *prima facie* case of obviousness, the examiner has the

burden of proving that (1) there is some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine the reference teachings; (2) there is a reasonable expectation of success; and (3) the combined references teach or suggest all the claim limitations. MPEP § 2143. Additionally, finding similar elements in one or more references does not render an invention automatically unpatentable, and the invention itself may not be used as an instruction book on how to reconstruct the invention from the art references. *See Panduit Corp. v. Dennison, Mfg. Co.*, 810 F.2d 1561, 1 USPQ2d 1593 (Fed. Cir. 1987). Finally, obviousness may not be established by picking and choosing from an art reference only so much of the reference as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. *Bausch & Lomb, Inc. v. Barnes-Hind, Inc.,* 796 F.2d 443, 230 USPQ 416 (Fed. Cir. 1986).

1. Cited References

The Bowers patent discloses an inventory system using articles, such as library books, with radio frequency identification (RFID) tags (Abstract). An RFID tag is attached to each article and, when properly interrogated, the RFID tag returns unique information that can be used to determine the identity of the article and the proper location of the article in the library (Col. 7, lines 32-40). The RFID tags can be interrogated by readers and interrogators, which include smart pedestals, portable RFID scanners, or patron self-checkout stations (Col. 7, line 41 through Col. 8, line 26). Each RFID tag includes a passive resonant radio frequency (RF) circuit for use in detecting when the tag is within a zone monitored by a reader or interrogator (Col. 8, lines 36-40). Each reader or interrogator communicates with RFID tags by inductive coupling, which couples power to an RFID tag and receives data from the RFID tag (Col. 6, lines 38-40; Col. 9, lines 17-18). The output of the reader or interrogator is connected to a database for verifying whether the detected articles have been properly checked out (Col. 7, lines 53-56).

In a further embodiment, Bower teaches a shelf scanning inventory system

for a library for use in performing inventory and verifying that articles are placed on a proper shelf (Col. 15, lines 21-24). An RFID scanner is brought into the proximity of the shelf and a portion of the shelf is interrogated by the scanner (Col. 15, lines 43-45). The scanner reads the return signals (serial numbers) from the tagged articles, which are processed and stored in the memory of a portable computer and communicated to a database (Col. 15, lines 45-49). After all article holding locations in the library are scanned, the detected serial numbers are compared with the library inventory stored in the database and a missing articles report is generated (Col. 16, lines 1-10).

The Reichenbach patent discloses a method for determining the position or scanning angle of a bar code reader in which one or more bar codes are detected at different positions within a scanning range of the bar code reader (Abstract; Col. 2, lines 45-49). The scanning distance between the bar code reader and a bar code is found (Col. 2, lines 49-51). The position or scanning angle of the bar code reader is found from the scanning distance and the known position of the bar code (Col. 2, lines 49-54). Objects with a plurality of bar codes can be introduced into the scanning region of the bar code reader with the geometric positioning of the bar codes relative to one another being known (Col. 3, lines 14-18). An object can be introduced into the scanning region such that two bar codes provided on the object have the same y- and z-coordinates and only have different x-coordinates (Col. 3, lines 18-22). When the spacing in the x-direction between the two bar codes is known, which represents the position of the bar codes relative to one another, the x-coordinates of the bar code reader can be found after detection of the two bar codes by the bar code reader, from which the respective scanning distance can then be determined (Col. 3, lines 22-28).

More specifically, Reichenbach teaches that an object is moved on a conveyer belt past a light barrier, whereby a starting signal for an incremental transducer is produced (Col. 5, lines 27-29). The object is moved into a position where a bar code arranged on the top side of the object is detected by a scanning beam of a bar code reader (Col. 5, lines 29-33). The scanning distance is found by a distance measurement or, alternatively, by determining the height of the

object and calculating the scanning distance from the height and the known position of the bar code on the object (Col. 5, lines 34-40). If the scanning angle is already known, the x-coordinate of the bar code reader can be calculated (Col. 5, lines 41-43). However, if one or both scanning angles are not known, a further object or plurality of objects with bar codes can be introduced into the scanning region until the respective bar codes are detected by the bar code reader and the scanning distances are determined (Col. 5, lines 44-51). The scanning angles and the x-coordinate of the bar code reader can be found from the scanning distances and the position values of the objects (Col. 5, lines 52-56).

2. Rejection of Claims 1 and 4

First, the Bowers and Reichenbach patents, taken as a whole, do not provide a suggestion, motivation, or reason to combine. Bowers and Reichenbach are directed to solving different types of needs relating to objects found within or without a defined space. Bowers is directed to inventory control, while Reichenbach is directed to calibrating the location or angle of a bar code reader. More particularly, Bowers teaches verifying whether an article is properly checked out from a library based on a preprogrammed information packet received back from a properly interrogated RFID tag (Col. 7, lines 37-40 and 53-56; Col 8, lines 60-63). Bowers further teaches performing an inventory and verifying that articles are placed on a proper shelf (Col. 15, lines 21-24). Thus, Bowers is primarily directed to determining the inventory *status* of an article in three-dimensional space by teaching a convenient and more precise way of maintaining accurate records of available and outstanding library articles. As articles enter or leave the controlled area, a library inventory database is automatically updated by reading the RFID tags attached to each article. Similarly, detected serial numbers are compared to the library inventory to generate a missing articles report. While Bowers teaches determining the relative location of an article, which can be inferred when an article is detected within the predefined zone, Bower still fails to teach or suggest determining an exact location of an article.

In contrast, Reichenbach teaches a learning process to determine the

coordinates or scanning angle of a bar code reader (Col. 5, lines 20-26). Reichenbach teaches calculating the scanning distance from a known position of a bar code on an object (Col. 2, lines 41-54; Col. 5, lines 33-40). Reichenbach further teaches that scanning angles and the position of the bar code reader can be found by scanning multiple objects with bar codes and known positions (Col. 5, lines 44-56). Finally, Reichenbach teaches that the spatial coordinates and scanning angles of a bar code reader can be determined through a sufficient number of learning processes with bar codes arranged at different positions within the scanning region (Col. 5, line 60 - Col. 6, line 6). Thus, Reichenbach is primarily directed to enabling a bar code reader to self-determine its own location by repeatedly performing the learning process. While Reichenbach teaches determining the location or scanning angle of a bar code reader, Reichenbach still fails to teach or suggests interacting with an object to provide a data signal.

Thus, one of ordinary skill at the time of applicants' invention would not be motivated or have a reason to combine the RFID tag inventory system teachings of Bowers with the bar code reader location or scanning angle determination system of Reichenbach. Bowers teaches determining the *status* of static objects that are either present in, or absent from, a predefined zone, whereas Reichenbach teaches determining the *position* of a bar code reader relative to an object. Nor does Bowers provide any suggestion to combine the teachings of an RFID tag inventory system with bar code scanning as taught by Reichenbach.

In addition, Bowers and Reichenbach employ incompatible approaches to solving their respective needs. Bowers teaches a passive resonant RF circuit having a coil antenna and capacitor that derives power for the RFID tag when a signal at a predetermined resonant frequency is received (Col. 8, lines 40-44). An interrogator or reader couples power to the RFID tag through the passive resonant RF circuit and receives back a data signal that can be used to determine the identity of the article and the proper location of the article (Col. 6, lines 38-40; Col. 7, lines 37-40).

In contrast, Reichenbach teaches scanning the surface of an object by means of a scanning beam and determining the position or scanning angle of the

bar code reader based on the known position of the bar code (Col. 2, lines 49-54; Col. 5, lines 29-40).

Fundamentally, Bowers teaches an RF-based inventory system. Bowers is primarily directed to determining the status of the articles inventoried and the exact location of each article within three-dimensional space is not relevant. As a result, Bowers teaches using RF, which is omnidirectional and can be used to both provide power to *and* receive data from RFID tags. In contrast, Reichenbach is primarily directed to scanning objects in a three-dimensional space. As a result, Reichenbach teaches using a scanning beam, which is directional and can be used to determine a position or scanning angle of a bar code reader relative to the object being scanned. Thus, one of ordinary skill in the art at the time of applicant's invention would not be motivated or have a reason to combine the RF-powered RFID tag teachings of Bowers, which are omnidirectional and provide both power and data, with the bar code scanning teachings of Reichenbach, which are directional and provide positional or scanning angle. Nor does Bowers provide any suggestion to combine the teachings of RF-powered RFID tags with the passive bar code scanning as taught by Reichenbach.

Second, even if combined, the Bowers and Reichenbach patents do not provide a reasonable expectation of success. Combining the RF-powered RFID tags taught by Bowers with the bar code scanning taught by Reichenbach would result in an inventory system using sensor-triggered tags on tracked objects coupled with a scanning beam source that passively scans, but does not trigger, the tags on the objects in three-dimensional space. Replacing the omnidirectional RF signal taught by Bowers with the directional bar code scanning beam taught by Reichenbach would provide an inoperative result. Without an RF signal, no data signal would be provided by each tag and no input would be received by the tag tracking system, per Claim 1. Furthermore, such a combination would still be limited to only providing the shape, dimension and position of each object and would fail to store state records of position and informational content of the tag, per Claim 1.

Lastly, even when combined by picking and choosing selected parts, the

Bowers and Reichenbach patents do not teach or suggest all claim limitations when considered in light of the disclosure of each respective patent. Bowers teaches RFID tags returning unique information for determining an identity of an article in response to passive resonant RF signals (Col. 7, lines 37-40). Reichenbach teaches a bar code scanning beam for use in determining the location or scanning angle of a bar code reader (Col. 2, lines 49-54; Col. 5, lines 34-40 and 44-46). Bowers fails to teach or suggest the use of a laser beam. Rather, Bowers teaches away from using a laser beam by teaching the use of an omnidirectional RF signal, which is used as both a power and data-triggering source. Similarly, Reichenbach also fails to teach or suggest the use of a *laser* beam and teaches away from receiving informational content from tags. Rather, Reichenbach teaches a *scanning* beam and makes no teaching or suggestion as to the type of scanning beam used. Moreover, Reichenbach fails to teach or suggest determining the position or angle of an *object*, which is <u>already</u> known for purposes of determining the location or scanning angle of a bar code reader. Thus, when combined, Bowers and Reichenbach fail to teach or suggest a tag reactive to incident laser beams to provide a data signal, per Claim 1.

Thus, a *prima facie* case of obviousness has not been shown with respect to Claim 1. Claim 4 is dependent on Claim 1 and is patentable for the above-stated reasons, and as further distinguished by the limitations recited therein. As a *prima facie* case of obviousness has not been shown, withdrawal of the rejection of Claims 1 and 4 for obviousness under 35 U.S.C. § 103(a) is requested.

3. Rejection of Claims 3 and 9

First, the Bowers and Reichenbach patents, taken as a whole, do not provide a suggestion, motivation, or reason to combine. Bowers and Reichenbach are directed to solving different types of needs relating to objects found within or without a defined space. Bowers is directed to inventory control, while Reichenbach is directed to calibrating the location or angle of a bar code reader. More particularly, Bowers teaches verifying whether an article is properly checked out from a library based on a preprogrammed information packet received back from a properly interrogated RFID tag (Col. 7, lines 37-40 and 53-

56; Col 8, lines 60-63). Bowers further teaches performing an inventory and verifying that articles are placed on a proper shelf (Col. 15, lines 21-24). Thus, Bowers is primarily directed to determining the inventory *status* of an article in three-dimensional space by teaching a convenient and more precise way of maintaining accurate records of available and outstanding library articles. As articles enter or leave the controlled area, a library inventory database is automatically updated by reading the RFID tags attached to each article. Similarly, detected serial numbers are compared to the library inventory to generate a missing articles report. While Bowers teaches determining the relative location of an article, which can be inferred when an article is detected within the predefined zone, Bower still fails to teach or suggest determining an exact location of an article.

In contrast, Reichenbach teaches a learning process to determine the coordinates or scanning angle of a bar code reader (Col. 5, lines 20-26). Reichenbach teaches calculating the scanning distance from a known position of a bar code on an object (Col. 2, lines 41-54; Col. 5, lines 33-40). Reichenbach further teaches that scanning angles and the position of the bar code reader can be found by scanning multiple objects with bar codes and known positions (Col. 5, lines 44-56). Finally, Reichenbach teaches that the spatial coordinates and scanning angles of a bar code reader can be determined through a sufficient number of learning processes with bar codes arranged at different positions within the scanning region (Col. 5, line 60 - Col. 6, line 6). Thus, Reichenbach is primarily directed to enabling a bar code reader to self-determine its own location by repeatedly performing the learning process. While Reichenbach teaches determining the location or scanning angle of a bar code reader, Reichenbach still fails to teach or suggests interacting with an object to provide a data signal.

Thus, one of ordinary skill at the time of applicants' invention would not be motivated or have a reason to combine the RFID tag inventory system teachings of Bowers with the bar code reader location or scanning angle determination system of Reichenbach. Bowers teaches determining the *status* of static objects that are either present in, or absent from, a predefined zone, whereas

Reichenbach teaches determining the *position* of a bar code reader relative to an object. Nor does Bowers provide any suggestion to combine the teachings of an RFID tag inventory system with bar code scanning as taught by Reichenbach.

In addition, Bowers and Reichenbach employ incompatible approaches to solving their respective needs. Bowers teaches a passive resonant RF circuit having a coil antenna and capacitor that derives power for the RFID tag when a signal at a predetermined resonant frequency is received (Col. 8, lines 40-44). An interrogator or reader couples power to the RFID tag through the passive resonant RF circuit and receives back a data signal that can be used to determine the identity of the article and the proper location of the article (Col. 6, lines 38-40; Col. 7, lines 37-40).

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Second, even if combined, the Bowers and Reichenbach patents do not

provide a reasonable expectation of success. Combining the RF-powered RFID tags taught by Bowers with the bar code scanning taught by Reichenbach would result in an inventory system using sensor-triggered tags on tracked objects coupled with a scanning beam source that passively scans, but does not trigger, the tags on the objects in three-dimensional space. Replacing the omnidirectional RF signal taught by Bowers with the directional bar code scanning beam taught by Reichenbach would provide an inoperative result. Without an RF signal, no data signal would be provided by each tag and no input would be received by the tag tracking system, per Claim 3. Furthermore, such a combination would still be limited to only providing the shape, dimension and position of each object and would fail to store state records of position and informational content of the tag, per Claim 3.

Lastly, even when combined by picking and choosing selected parts, the Bowers and Reichenbach patents do not teach or suggest all claim limitations when considered in light of the disclosure of each respective patent. Bowers teaches RFID tags returning unique information for determining an identity of an article in response to passive resonant RF signals (Col. 7, lines 37-40). Reichenbach teaches a bar code scanning beam for use in determining the location or scanning angle of a bar code reader (Col. 2, lines 49-54; Col. 5, lines 34-40 and 44-46). Bowers fails to teach or suggest the use of a laser beam. Rather, Bowers teaches away from using a laser beam by teaching the use of an omnidirectional RF signal, which is used as both a power and data-triggering source. Similarly, Reichenbach also fails to teach or suggest the use of a *laser* beam and teaches away from receiving informational content from tags. Rather, Reichenbach teaches a *scanning* beam and makes no teaching or suggestion as to the type of scanning beam used. Moreover, Reichenbach fails to teach or suggest determining the position or angle of an *object*, which is <u>already</u> known for purposes of determining the location or scanning angle of a bar code reader. Thus, when combined, Bowers and Reichenbach fail to teach or suggest a tag reactive to incident laser beams to provide a data signal, per Claim 3.

Thus, a *prima facie* case of obviousness has not been shown with respect

to Claim 3. Claim 9 dependent on Claim 3 and is patentable for the above-stated reasons, and as further distinguished by the limitations recited therein. As a *prima facie* case of obviousness has not been shown, withdrawal of the rejection of Claims 3 and 9 for obviousness under 35 U.S.C. § 103(a) is requested.

B. Second Rejection under 35 U.S.C. § 103(a)

To establish a *prima facie* case of obviousness, the examiner has the burden of proving that (1) there is some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine the reference teachings; (2) there is a reasonable expectation of success; and (3) the combined references teach or suggest all the claim limitations. MPEP § 2143. Additionally, finding similar elements in one or more references does not render an invention automatically unpatentable, and the invention itself may not be used as an instruction book on how to reconstruct the invention from the art references. *See Panduit Corp. v. Dennison, Mfg. Co.*, 810 F.2d 1561, 1 USPQ2d 1593 (Fed. Cir. 1987). Finally, obviousness may not be established by picking and choosing from an art reference only so much of the reference as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. *Bausch & Lomb, Inc. v. Barnes-Hind, Inc.*, 796 F.2d 443, 230 USPQ 416 (Fed. Cir. 1986).

1. Rejection of Claims 5-8

A *prima facie* case of obviousness has not been established for the rejection of Claims 5-8 under 35 U.S.C. § 103(a) as being obvious over Bowers in view of Reichenbach and further in view of Moran. As argued above with respect to the rejection of Claims 1 and 4 for obviousness over Bowers in view of Reichenbach, a *prima facie* case of obviousness has not been shown. Claims 5-8 are dependent on Claim 1 and are patentable for the above-stated reasons, and as further distinguished by the limitations recited therein.

2. Rejection of Claims 10-13

A *prima facie* case of obviousness has not been established for the rejection of Claims 10-13 under 35 U.S.C. § 103(a) as being obvious over Bowers in view of Reichenbach and further in view of Moran. As argued above with respect to the rejection of Claims 3 and 9 for obviousness over Bowers in view of Reichenbach, a *prima facie* case of obviousness has not been shown. Claims 10-13 are dependent on Claim 3 and are patentable for the above-stated reasons, and as further distinguished by the limitations recited therein.

In view of the foregoing arguments, Applicant respectfully submits that the rejections under 35 U.S.C. § 103(a) cannot be sustained and should be withdrawn. Appellant's undersigned attorney can be reached at (206) 381-3900. The Appeal Brief fee is included with the Appeal Brief.

Dated: June 30, 2005

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8. CLAIMS APPENDIX

1. (previously presented): A system for identification and tracking of tags distributed in a room, the system comprising,

a laser base station for scanning laser beams through a portion of the room,

a tag reactive to incident laser beams to provide a data signal, and

a tag tracking system receiving input from the laser base station, the tag tracking system storing state records of position and informational content of the tag,

wherein the tag tracking system determines angular position of the tag with respect to the laser base station.

2. (cancelled).

3. (previously presented): A system for identification and tracking of tags distributed in a room, the system comprising,

at least two laser base stations,

a tag reactive to incident laser beams to provide a data signal, and

a tag tracking system receiving input from the at least two laser base stations, the tag tracking system storing state records of position and informational content of the tag,

wherein the tag tracking system determines an absolute position of the tag in the room based on the input from the at least two laser base stations.

4. (original): The system of claim 1, wherein the tag is passive.

5. (original): The system of claim 1, wherein the tag is active, having an internal power supply to power a data broadcast element.

6. (original): The system of claim 1, wherein the tag is active, having an internal power supply to power an optical data output element.

7. (original): The system of claim 1, wherein the tag is active, having an internal power supply to power a radio data output element.

8. (original): The system of claim 1, wherein the tag is active, having an internal power supply to power an acoustic data output element.

9. (previously presented): The system of claim 3, wherein the tag is passive.

10. (previously presented): The system of claim 3, wherein the tag is active, having an internal power supply to power a data broadcast element.

11. (previously presented): The system of claim 3, wherein the tag is active, having an internal power supply to power an optical data output element.

12. (previously presented): The system of claim 3, wherein the tag is active, having an internal power supply to power a radio data output element.

13. (previously presented): The system of claim 3, wherein the tag is active, having an internal power supply to power an acoustic data output element

9. EVIDENCE APPENDIX

None.

10. RELATED PROCEEDINGS APPENDIX

None.